



Date of Application and filing Complete Specification: Aug. 30, 1950.

No. 21396/50.

Application made in Germany on July 14, 1949.

Complete Specification Published: July 9, 1952.

Index at acceptance:—Class 97(ii), F(3:4), N1i.

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COMPLETE SPECIFICATION

Improvements in Level Instruments

We, GÜNTHER KAMMER, of 218 Kaiserwertherstrasse, Düsseldorf, Germany, and OTTO SAUER, of 34 Simrockstrasse, Düsseldorf, Germany, both German citizens, do hereby declare the nature of this invention, for which we pray that a patent may be granted to us, and the method by which it is performed to be particularly described in and by the following statement:—

10 The invention relates to level instruments of bar form of known construction comprising level indicators and scales. The level indicators in those cases are accommodated inside the level instruments but so as to be visible from the outside. In the hitherto customary form, the level instrument comprises a wooden bar which is formed with recesses for accommodating the indicating device. Temperature influences and the employment of insufficiently pretreated wood may easily produce inaccuracies which impair the usefulness of the level instrument or make it quite useless. With the employment of solid bodies with built-in level indicators, the housing of adjustable level indicators is extremely difficult, so that, in practice, it has been necessary to do without employing the known adjustable level indicators in the case of level instruments of the construction in question.

30 The invention, which relates more particularly to a level instrument with level indicators and sighting devices arranged therein, obviates the aforesaid disadvantage by virtue of the fact that the body of the instrument consists of drawn or pressed tubing of rectangular cross-section. Advantageously, the material employed for the tube is metal, especially aluminium or an aluminium alloy. Thus, ordinary commercial tubes can be employed for the production of level instruments, in contradistinction to the general references, to be found here and there in patent literature, to the fact that the basic body of the level instrument may also be made of iron, by which is meant iron plates that are joined together. The rectangular tubes, which are insensitive to mechanical and, especially, to thermal influences, render the new level instrument especially certain in

operation.

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The level indicators housed in the body of the instrument are advantageously adjustable from the outside.

The new level instrument is illustrated in the accompanying drawings, of which

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Fig. 1 is a perspective representation;

Fig. 2 illustrates the sighting device; and

Fig. 3 shows the adjustable fitting of a level indicator in section.

The basic body of a water level instrument according to the invention, which consists of a square tube, can be seen distinctly in Fig. 1; in it there is accommodated the level indicator 1 which can be regulated by rotating set-screws 2. These screws 2 are screwed into the frame 4 of the level indicator, with the interposition of helical springs 3. The latter serve as distance pieces which keep the frame 4 firmly pressed to the screw-thread and thus keep the level indicator mounted in a shock-free manner. 5 denotes openings in the walls of the tube which render possible the observation of the movement of the level indicator. Corresponding openings for the vertical level indicator 6 are denoted by 7. The possibility of inserting these two level indicators is indicated in the drawings. The level indicator 6 is located in an insertion member which is fixed in its position of use by screws which are screwed in from the outside. The sighting members, for the level indicators, are denoted by 11 and 8. The reference numerals 11 indicate sighting pins and the reference numeral 8 indicates a reflecting mirror with which apertures 9 and 12 are associated. 9 represents the viewing aperture. These apertures are closable by means of swingable shutters 10 and 13.

Whilst the term water level instruments, i.e., an instrument with liquid levels, has hereinbefore been used, bar instruments, in which, instead of liquid levels, mechanically operating indicators are provided, are to be understood as coming within the scope of the invention.

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What we claim is:—

1. A level instrument with level indicators and sighting devices arranged therein, charac-

terised by the feature that the body of the instrument consists of drawn or pressed tubing of rectangular cross-section.

2. A level instrument according to claim 1, 5 wherein the tubing is made of aluminium or one of its alloys.

8. A level instrument according to claim 1 or 2, which is provided with two level 10 indicators for horizontal and vertical measurement respectively, wherein the level indicators lie in frames which are fixed inside the hollow body and are adjustable from the outside.

4. A level instrument according to claim 3, characterised by resilient distance pieces 15 between the frames and the wall of the body.

5. A level instrument, constructed substantially as hereinbefore described with reference to and as illustrated by the accompanying 20 drawings.

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Redhill: Printed for Her Majesty's Stationary Office, by Love & Malcomson, Ltd.—1952.
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which
copies may be obtained.

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Fig. 1

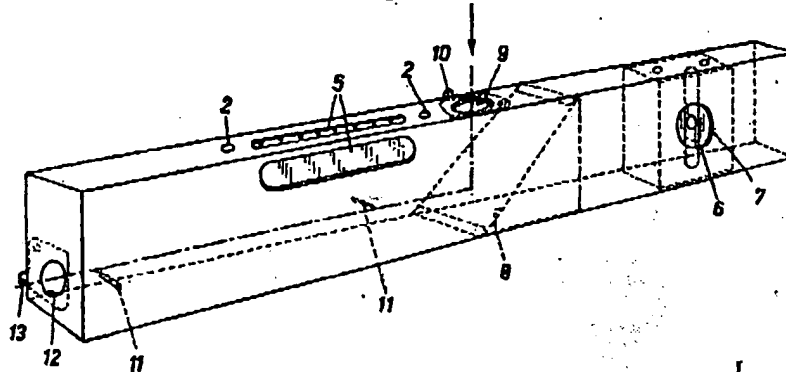


Fig. 2

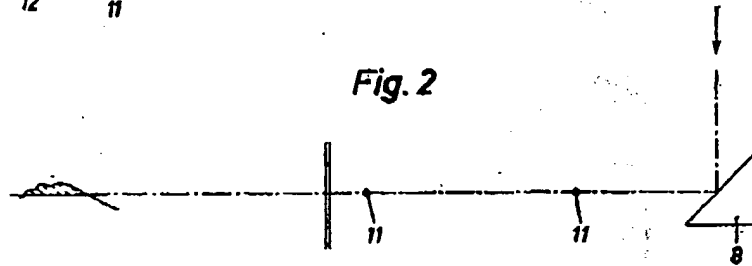


Fig. 3

